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EXAMINER	
DIVINE, LUCAS	
ART UNIT	PAPER NUMBER
2624	

DATE MAILED: 08/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/758,346	OHARA, EIJI	
	Examiner	Art Unit	
	Lucas Divine	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 July 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-36* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-36* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 January 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 7/21/05 has been entered.

Response to Amendment

2. Claims 1 – 36 are pending.

Response to Arguments

3. Applicant's arguments filed 7/21/05 have been fully considered but they are not persuasive.

With respect to applicant's chief argument that none of the references teach obtaining information regarding memory from a host computer.

In reply, Examiner's previous statement that Smith teaches this limitation is maintained. Therefore discussion of other references not teaching the limitation is not relevant.

Applicant teaches in Figs. 1 and 2 that the features of Fig. 2 are within host computer 402. Fig. 2 teaches a printer control apparatus 100 and host CPU and host memory. Thus, both the image control apparatus and host computer are in the same device. Further, obtaining host memory information entails accessing host memory via a PCI bus (paragraph 40). The only

items in Fig. 2 that are specifically referred to as the host are the memory and CPU and these are what the interactions between the printer control apparatus 100 relate to. See further description of Fig. 2. Thus, applicant specifically teaches a 'host computer' in the claims to be able to be

- In the same physical device as the printer control apparatus.
- A memory and a CPU.
- Able to be connected to the printer control apparatus via a PCI bus.

Further, the only functions of said host computer in amended claim 1 are to

- Have a memory and
- Receive and transmit compressed data to/from the printer control apparatus.

Applicant puts forth that since compressed raster print data memory 6 is located in a printer, it is not in a host computer in communication with a print control apparatus.

Examiner looks to Fig. 5 of Smith, wherein what Examiner claims can be read as a host computer (ref. no. 6, 2, & 132) is

- In the same physical device as the printer control apparatus.
- A memory and a CPU.
- Able to be connected to the printer control apparatus via a PCI bus.
- Performs all of the limitations of applicant's claim 1:
  - Has a memory (2, 6).
  - Receives and transmits compressed data to/from the printer control apparatus (bidirectional line in Fig. 5 as well as discussed more in the rejection below).

Due to applicant's host computer, as taught in applicant's specification and discussed above, being given a specific meaning and not the well known meaning, Examiner finds that Smith reads on the limitation discussed in applicant's arguments and the rejection is maintained.

Further, in the combined system of Accad and Smith, the memory is placed at host 10 of Accad, which is specifically referred to as a host computer (Fig. 1 of Accad).

Further, as stated in previous Action, Examiner reads the Smith patent as having three separate computing system units, shown in Fig. 5, a system component including memories 6, 2, and microprocessor 132 (wherein the memories are referred to as system memory – col. 16 line 49, col. 26 lines 30, 48, 61 and 65), an ASIC component 120 that performs image data processing (col. 23 lines 8-12), and an print engine 16 that performs final printing.

In regards to the limitation obtaining means for obtaining system information from host computer and analyzing said system information which is obtained by said obtaining means, Smith teaches obtaining information about available memory space in system memory (col. 15 lines 37-38), which reads on obtaining system information and analyzing said system information because the available memory must be analyzed to determine how much subsampling is completed (col. 15 lines 35-37).

In regards the limitation outputting means for outputting compressed image data to a host, Smith teaches outputting compressed image data to compressed raster print memory 6 (col. 24 lines 37-50), which is in a separate computing unit than the compression circuit (in ASCI 120).

The first system computing unit comprises both the memories that are have information obtained from them and have compressed data outputted to them. The first computing unit also includes the microprocessor. A host computing device as known in the art is the device that issues control information over a computing system, in this case the control over image data processing and printing.

Examiner believes the system of Smith and Accad are combinable because the systems are similar, with the host computer 10 of Accad performing control over the image data processing pipeline shown in Fig. 1 including print processing components 20, 30, 40, and 50. Thus the host machine of Accad acts in similar fashion to the system components 132, 2, and 6 of Smith. Further, as combined, the system components of Smith would then be implemented in the host 10 of Accad for control over the image data processing system and printer, and both the obtaining means and outputting means would access the host computing components.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1 – 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Accad (US 5982937) in view of Smith et al. (US 5999710).

Regarding claim 1, Accad teaches **a print control apparatus** (Fig. 2, ref. no. 50) **which can communicate with a host computer and an image output apparatus** (both shown in Fig. 1), **comprising:**

data generating means for generating second data (Fig. 1 ref. no. 30, col. 1 lines 20-22 and col. 5 lines 24-29, wherein printable second 'bitmap' data is generated from inputted first 'PDL' data) **which can be outputted from said image output apparatus** (Fig. 1 ref. nos. 54, 70, and 80, col. 5 lines 30 and 31, wherein jobs are output to the print engine to be printed) **from first data which is inputted from said host computer** (Fig. 1, ref. no. 10, col. 5 lines 20-21, wherein the host inputs print documents to the system);

first data compressing means for generating third data by performing a data compression based on a first compression format to said second data (Fig. 3 ref. no. 150, col. 8 lines 12-24, wherein second data is run through a first data compressing);

second data compressing means for generating fourth data by performing a data compression based on a second compression format different from said first compression format to said second data (Fig. 3 ref. no. 160, col. 8 lines 27-37, wherein second data is run through a second compressing different from the first compressing);

first data decompressing means for generating fifth data by performing a data decompression corresponding to said first compression format to said third data (Fig. 3 ref. no. 310, col. 10 lines 11-18, wherein the first decompression corresponds to the first compression format);

second data decompressing means for generating sixth data by performing a data decompression corresponding to said second compression format to said fourth data (Fig. 3

ref. no. 320, col. 10 lines 19-25, wherein the second decompression corresponds to the second compression format);

and second output means for outputting said fifth or sixth data to said image output apparatus (Fig. 1 ref. nos. 54, 70, and 80, col. 5 lines 30 and 31, wherein jobs are output to the print engine to be printed).

Accad also teaches that the compressed images can be stored in RAM apart from the compression unit that compressed data is outputted to and inputted from (Fig. 3 ref. nos. 200 and 66, col. 5 lines 52-64, wherein the RAM can store the compressed page buffer).

Accad fails to teach **obtaining means for obtaining system information from said host computer, first output means for analyzing said system information which is obtained by said obtaining means and outputting said third or fourth data to said host computer, or the third or fourth data being inputted from said host computer.**

Smith teaches placing the memory for compressed data in the host (Fig. 5 ref. no. 6, col. 16 lines 41-52 and col. 15 line 12, wherein the compressed data is stored in the 'system' or 'host' memory). Smith also teaches **obtaining means for obtaining system information from said host computer and analyzing said system information which is obtained by said obtaining means** (col. 15 lines 35-38 and col. 16 lines 54-55, wherein the print control circuit has access to and obtains the information of available system memory and is able to analyze said available memory to decide where to place compressed print data as well as decide what type of sub sampling to do). Smith further teaches **first output means for outputting said third or fourth data to said host computer and the third or fourth data being inputted from said host computer** (Figs. 1 and 5 ref. no. 6, col. 23 lines 22-25 and col. 24 lines 37-50, wherein the data

is outputted to and inputted from compressed data memory shown to be located at the host computer above).

Accad and Smith are combinable because they both take inputted print data, compress it in two different ways, make memory decisions based on the data, and then output the data to a print engine. Accad's storage RAM 66, which can hold their compressed page buffer 200 (col. 5 lines 62-64), acts the same as Smith's compressed raster print data memory 6 by holding the compressed image data before decompression.

It would have been obvious to one of ordinary skill in the art to place the storage RAM of Accad on the host as Smith teaches. The motivation for doing so would have been to make the processing of data through the compression system more efficient by reducing the complexity of memory interfacing, make the system memory size be more flexible and adjustable for other printing tasks, and allow the compression section to be more flexible to configuration alterations of varying print job types.

Regarding claim 2, which depends from claim 1, Accad teaches that **first data is code data according to a page description language** (Fig. 1 ref. no. 20, col. 5 lines 23-25).

Regarding claim 3, which depends from claim 1, Accad teaches that **second data is bit map data according to a dot format** (Fig. 1 ref. no. 40, col. 5 lines 26-29).

Regarding claim 4, which depends from claim 1, Accad teaches that **said first compression format which is used in said first data compressing means is a reversible compression format, and the decompression which is executed by said first data decompressing means is a decompression to data of a format opposite to said reversible compression format** (col. 2 lines 63-64 and col. 8 lines 12-24 and col. 10 lines 11-18, wherein

the first compression and decompression is performed by a lossless, by definition reversible - provided in Microsoft Computer Dictionary reference - , method between the bit map and run length code formats).

Regarding claim 5, which depends from claim 1, Accad teaches that **said first compression format which is used in said first data compressing means is a run length compression format, and the decompression which is executed by said first data decompressing means is a decompression to data of a format opposite to said run length compression format** (col. 2 lines 63-64 and col. 8 lines 12-24 and col. 10 lines 11-18, wherein the first compression and decompression is performed by a run length compression format, method between the bit map and run length code formats).

Regarding claim 6, which depends from claim 1, Accad teaches that **said second compression format which is used in said second data compressing means is an irreversible compression format, and the decompression which is executed by said second data decompressing means is a decompression to data of a format opposite to said irreversible compression format** (col. 3 lines 1-4 and col. 8 lines 27-37 and col. 19-25, wherein the second compression and decompression is performed by a lossy, by definition irreversible, method between the bit map and JPEG formats).

Regarding claim 7, which depends from claim 1, Accad teaches that **said second compression format which is used in said second data compressing means is a JPEG compression format, and the decompression which is executed by said second data decompressing means is a decompression to data of a format opposite to said JPEG compression format** (col. 3 lines 1-4 and col. 8 lines 27-37 and col. 19-25, wherein the second

compression and decompression is performed by JPEG encoding, method between the bit map and JPEG formats).

Regarding claim 8, which depends from claim 1, Smith teaches that **the information concerning the memory provided in said host computer** (Fig. 5 ref. nos. 2, 6)**, which is obtained by said obtaining means is a capacity of a memory which said host computer has** (col. 15 lines 35-38 and col. 16 lines 54-55, wherein the compressing system has the ability to check the capacity memory space).

Regarding claim 9, which depends from claim 1, Smith teaches that **the information concerning the memory provided in said host computer** (Fig. 5 ref. nos. 2, 6), **which is obtained by said obtaining means is a free capacity in a memory which said host computer has** (col. 15 lines 35-38 and col. 16 lines 54-55, wherein the compressing system has the ability to check the available memory space).

Regarding claim 10, which depends from claim 1, Smith teaches that **said third or fourth data which is outputted by said first output means is stored in a host memory or a hard disk which is built in said host computer** (Fig. 5 ref. no. 6, col. 26 lines 41-52 and col. 15 line 12, wherein the compressed data is stored in the 'system' or 'host' memory).

Regarding claim 11, which depends from claim 1, Smith teaches that **when the first data is color image data, said first and second data compressing means generate compression data for each color component** (Fig. 1 ref. no. 12 and Fig. 5 ref. no. 125, col. 18 lines 55-67 and col. 19 lines 7-9 and discussed throughout, wherein the system generates compression data for each color component).

Regarding claim 12, which depends from claim 1, Smith teaches that **said print control apparatus and said host computer are connected by a predetermined bus interface** (Fig. 5 ref. no. 121, col. 23 lines 12-30, wherein the host and print control apparatus are connected by the PCI bus but could be another bus as stated in line 17).

Regarding claims 13 – 22, the method steps of claims 13 – 22 are implicit in the operation of the apparatus discussed in the rejection of claims 1 – 10. By example, the obtaining and analyzing steps are shown by the obtaining and analyzing means of Smith wherein the print control circuit obtains and analyzes system information of available system memory. The data generating step is shown by data generator 30 of Accad's apparatus. The compressing and decompressing steps are shown by compressors 150 and 160 and decompressors 310 and 320 of Accad's apparatus. The inputting and outputting steps to and from host memory are shown by the lines representing inputting from and outputting to compression memory 6 in Fig. 1. Therefore, the claimed limitations of method claims 13 – 22 are met for the reasons discussed in the rejection of apparatus claims 1 – 10.

Regarding claims 23 – 32, the limitations of **a computer-readable memory medium which records a program for allowing a print control apparatus to execute said program** are shown in the invention of Accad and Smith. The computer-readable memory medium is disclosed as the ROM 64 of Accad and can be run by the Microprocessor 62. The steps of the algorithm are shown by the computer controlled operation of the apparatus of Accad and Smith as discussed in the method steps above regarding claims 13 – 22.

5. Claims 33 – 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Accad and Smith in view of Sawano (US 5903715).

Regarding claim 33, Accad teaches **a print control apparatus which can communicate with a host computer and a printing apparatus** (Fig. 1) **comprising: data generating means for generating bit map data** (Fig. 1 ref. no. 30, col. 1 lines 20-22 and col. 5 lines 24-29, wherein printable second 'bitmap' data is generated from inputted first 'PDL' data) **which can be outputted from said printing apparatus** (Fig. 1 ref. nos. 54, 70, and 80) **from print data which is inputted from said host computer** (Fig. 1, ref. no. 10, col. 5 lines 20-21, wherein the host inputs print documents to the system);

and second output means for outputting the bit map data generated by said data decompressing means to said printing apparatus (Fig. 1 ref. nos. 54, 70, and 80, col. 5 lines 30 and 31).

Accad does not specifically teach outputting compression data to host computer.

Smith teaches **first output means for outputting the compression data generated by said data compressing means to said host computer and data being inputted from said host computer** (Figs. 1 and 5 ref. no. 6, col. 23 lines 22-25 and col. 24 lines 37-50, wherein the data is outputted to and inputted from compressed data memory shown to be located at the host computer above).

Accad and Smith are combinable because they both take inputted print data, compress it in two different ways, make memory decisions based on the data, and then output the data to a print engine. Accad's storage RAM 66, which can hold their compressed page buffer 200 (col. 5

lines 62-64), acts the same as Smith's compressed raster print data memory 6 by holding the compressed image data before decompression. It would have been obvious to one of ordinary skill in the art to place the storage RAM of Accad on the host as Smith teaches. The motivation for doing so would have been to make the processing of data through the compression system more efficient by reducing the complexity of memory interfacing, make the system memory size be more flexible and adjustable for other printing tasks, and allow the compression section to be more flexible to configuration alterations of varying print job types.

Accad and Smith do not teach **data compressing means for selecting one of a plurality of compression formats for said bit map data and generating compression data by performing a data compression based on said selected compression format; data compressing means for selecting one of a plurality of compression formats for said bit map data and generating compression data by performing a data compression based on said selected compression format; data decompressing means for generating bit map data by performing a data decompression to said compression data; and control means for selecting the compression format in said data compressing means on the basis of information obtained from said host computer.**

Sawano teaches **data compressing means for selecting one of a plurality of compression formats for said bit map data and generating compression data by performing a data compression based on said selected compression format** (Fig. 2 ref. nos. 13 and 14, col. 2 lines 45-53 and col. 3 lines 15-20, wherein a plurality of compression formats perform compression upon data occurs and the best compressed data is then selected by comparator 14);

data decompressing means for generating bit map data by performing a data decompression to said compression data (Fig. 2 ref. no. 19, col. 3 lines 40-43, wherein the restoring sections restore the compressed data to bit map format);

and control means for selecting the compression format in said data compressing means on the basis of information obtained from said host computer (Fig. 2 ref nos. 14 and 17, col. 3 lines 23-30, wherein the analyzer 14 selects the smallest amount of compressed data based on the free memory of RAM 17).

Sawano is combinable with Accad and Smith because they all take inputted print data, compress it in different ways, make memory decisions based on the data, and then output the data to a print engine. Sawano's storage RAM 17 acts the same as Smith's compressed raster print data memory 6 and Accad's RAM 66 by holding the compressed image data before decompression.

It would have been obvious to a person of ordinary skill in the art to add the plurality of compression formats and selection thereof of Sawano to the combined invention of Accad and Smith. The motivation for doing so would have been to provide more choices of compression formats to more effectively utilize the available memory and provide more user control on how compression is completed on each print job.

Regarding claim 34, which depends from claim 33, Sawano teaches that **said control means selects the compression format in said data compressing means on the basis of a memory capacity of said host computer obtained from said host computer** (Fig. 2 ref nos. 14 and 17, col. 3 lines 23-30, wherein the analyzer 14 selects the smallest amount of compressed

data based on the free memory of RAM 17, which would be placed in the host as taught by Smith).

Regarding claim 35, the limitations of claim 35 are the same as the limitations of independent claim 33 except the limitations listed below. The limitations that are the same as claim 33 are taught by Accad, Smith, or Sawano and are rejected for the reasons discussed with respect to the rejection of claim 33.

Accad further teaches **connecting means for connecting a printing apparatus** (Fig. 1 ref. no. 54, col. 5 lines 30-31, wherein the line representing an output to the print engine inherently refers to a connecting means for connecting to the printing apparatus).

Regarding claim 36, which depends on claim 35, Smith teaches that **said print data is data received by said host computer from another apparatus through a network** (Figs. 1 and 5 ref. no. 6, col. 23 lines 22-25 and col. 24 lines 37-50, wherein when the print control apparatus outputs to the host, the host computer receives the print data).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lucas Divine whose telephone number is 571-272-7432. The examiner can normally be reached on Monday - Friday, 7:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Moore can be reached on 571-272-7437. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Lucas Divine
Examiner
Art Unit 2624

ljd

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PRIMARY EXAMINER